

11/15/00

S P E C I F I C A T I O N

TITLE

**"A SYSTEM AND A METHOD FOR AN AUDIT AND VIRTUAL CASE
MANAGEMENT OF A BUSINESS AND/OR ITS COMPONENTS"**

5 **BACKGROUND OF THE INVENTION**

 The present invention generally relates to a system
and a method for an audit of a business and/or its
components. The present invention further relates to a
system and method for monitoring, auditing, mitigating,
10 categorizing, predicting and/or tracking of
clinical/medical and/or financial errors that may be made
by a business. Still further, the present invention
provides a system and a method for using the
clinical/medical and/or financial errors as a case
15 management tool.

 It is, of course, generally known to conduct audits
of financial transactions within a company, such as a
hospital. In addition, most hospitals and/or other
healthcare providers have some type of case management
20 program that may evaluate limited aspects of
clinical/medical care of a patient or may target specific
diagnostic groups. Such programs, however, fail to
manage day-to-day patient revenues and/or ongoing market
changes or the like which is prevalent in the health care
25 industry. In addition, such programs, merely audit
financial transactions after the patient has been treated
and discharged.

 In addition, it is generally known for health care
personnel to manage the health of patients as well as the
30 financial costs associated with caring for the patient.

The combined responsibility of healthcare professionals to manage patients both clinically/medically and financially is a fundamental cause of inefficiencies that exist in health care. For example, a nurse often is required to perform multiple tasks. Three commonly required tasks are to administer a service to a patient, to document what service was given to the patient, and then to charge the cost associated with administering the service to the patient. The nurse may assign administering the service to the patient as a top priority, documenting the type of service administered to the patient as a second priority, and give the lowest priority to charging the cost of the task to the patient.

In addition, health care providers must stay current on the latest diagnostic technology as well as the complex financial structure and/or relationships with insurance companies and/or regulatory requirements. If a health care provider does not stay current on payor rules, the health care provider may not get paid and may often be fined. A payor is any person or entity who is responsible for payment of healthcare services. A payor may be private, such as an insurance company, or may be public, such as medicare and medicaid, or may be the patient receiving the health care.

A need, therefore, exists for a system and a method for auditing the records of a health care facility that does not involve caretakers of a patient but personnel trained specifically to be familiar with the business subject matter and ongoing market changes; as well as a method and system for auditing a business, such as a

health care facility, from the moment a patient enters the facility on a day-to-day basis.

To this end, the present invention provides a system and a method for identifying, qualifying, quantifying, coding, categorizing, prediction and/or mitigation of errors and/or subsequent methodology updates. The coding, categorizing, prediction and/or mitigation of errors are fundamental and unique processes for analyzing financial and clinical/medical deficiencies within health care facilities. More specifically, the present invention provides a formula that tracks three types of errors in a health care business: financial, department specific, and clinical/medical. Further, the identifying, qualifying, quantifying, coding, categorizing, prediction and/or mitigation of errors are not performed by patient care providers. Still further, the method for identifying, qualifying, quantifying, coding, categorizing, prediction and/or mitigation of errors is conducted on a concurrent basis through point of service audits. Still further, the data generated from the audits may be used as a case management tool.

SUMMARY OF THE INVENTION

The present invention provides a system and a method for an audit of a business and/or its components. More specifically, an formula is provided that tracks three types of errors in a health care business: financial, department specific, and clinical/medical. Data mining of errors may be used as a case management tool. The errors may be coded and may be categorized by persons other than patient care providers. Further, the present

invention provides a method for identifying, qualifying, quantifying, coding, categorizing, prediction and/or mitigation of errors on a concurrent basis through point of service audits.

5 To this end, in an embodiment of the present invention a method is provided for training personnel to audit a business at a location where a transaction occurs and the location is associated with the business. The method is comprised of the steps of choosing personnel
10 to audit the business and training the personnel to collect data, to audit records as the records are created, and to visually audit the transaction of the business.

15 In an embodiment of the present invention, the personnel are trained to audit records by comparison to sources for documenting the business and the personnel are trained to identify any irregular activity that is not documented.

20 In an embodiment of the present invention, the personal are trained to evaluate the effectiveness of the audit of the business and to design efficient auditing procedures for the business. The personnel are also trained to communicate with clients, to conduct a retrospective analysis of the business, to collect
25 relevant data, and to enter data into a database.

30 In another embodiment of the present invention, a method is provided for auditing of a business at a location where a transaction occurs. The location is associated with the business. The method is comprised of the steps of conducting a general audit of the

business, entering information collected during the
general audit into a database, data mining information
collected from the general audit, prioritizing an area
in which a significant error occurs and establishing a
specification code for each function of the business.
The specification code is used to create an auditing
chart. Additional steps of the method are comprised of
choosing a pilot area associated with the area in which
the significant error occurs, testing the auditing chart
in the pilot area, auditing the pilot area with the
auditing chart at the location of the transaction,
collecting information during the auditing of the pilot
area and modifying the auditing of the business on-site
based on the information collected in the pilot area.
Further, the specification code and the auditing chart
are updated and the pilot area is audited with the
updated specification code and the auditing chart.

In an embodiment, the auditing is on a day-to-day
basis and data is entered on a day-to-day basis.

In an embodiment, clinical/medical records,
financial records, and activities that are not documented
are audited.

In an embodiment, a second area and/or subsequent
areas associated with an area in which a significant
error occurs may be chosen. The second area is audited
with a auditing chart at the location of the transaction.
Information is collected during the auditing of the
second area. The business is modified and audited on-
site based on the information collected in the second
area. Further, specification code and the auditing chart

are updated based on the information collected in the second area and the second area is then audited with the updated specification code and the updated auditing chart.

5 In another embodiment of the present invention, a method for virtual case management of a business is provided. The method is comprised of the step of conducting a continuous audit of a process to identify process errors associated with the business. The method
10 is further comprised of the steps of collecting errors from the continuous audit, entering the errors into a database, data mining the errors in the database, creating a flowchart from the data mining, creating a case management tool from the flowcharts and mitigating
15 the errors with the case management tool.

In an embodiment the errors include clinical/medical errors, financial errors and department errors.

In another embodiment of the present invention a system for an audit of a business is provided. The
20 system is comprised of personnel associated with the audit of the business, a specification code created by personnel for a function of the business, an auditing chart created with the specification code, and a database wherein information associated with an error from the
25 audit of the business is stored and the error is mined. Further, a pilot area of the business is provided to test the auditing chart.

In another embodiment of the present invention a system for virtual case management of a business is provided.
30 The system is comprised of a continuous audit of a

process to identify process errors associated with the business. The system is further comprised of a database wherein the errors from the continuous audit are mined. Still further a flowchart associated with the errors
5 mined is provided and a case management tool created from the flowcharts is provided.

It is, therefore, an advantage of the present invention to provide a system and a method to identify clinical/medical errors to reduce financial risks to a
10 facility.

Another advantage of the present invention is to provide a system and a method to identify financial errors to increase revenue and cash flow of a business while decreasing inefficiencies in clinical/medical
15 records, in the business office, in specific department areas, and/or decrease exposure to fines.

And, another advantage of the present invention is to provide a system and a method to improve data accuracy for a cost accounting system.

20 Yet another advantage of the present invention is to provide a system and a method to improve data collection used for payor contract negotiations.

A further advantage of the present invention is to provide a system and a method to improve operational
25 deficiencies.

A still further advantage of the present invention is to provide a system and a method to improve patient satisfaction.

Another advantage of the present invention is to
30 provide a system and a method to recover lost revenue.

And, another advantage of the present invention is to provide a system and a method to correct operational errors that may adversely affect the health care provider.

5 A further advantage of the present invention is to provide a system and a method to mitigate and/or track clinical/medical errors.

10 A still further advantage of the present invention is to provide a system and a method to decrease internal waste in a business.

 Another advantage of the present invention is to provide a system and a method to mitigate potential denials from payors such as an insurance company.

15 And, another advantage of the present invention is to provide a system and a method that increases economic value for health care providers and for users of the system.

20 Moreover, an advantage of the present invention is to provide a system and a method for virtual case management of a business and/or its components.

 Another advantage of the present invention is to provide a system and a method to automate management of health care episodes.

25 And, another advantage of the present invention is to provide a system and a method that provides a cost effective tool for case management of a business and its components.

30 A further advantage of the present invention is to provide a system and a method to facilitate a decision-making process, reduce errors, improve outcomes, and

provide access to resources.

Additional features and advantages of the present invention are described in, and will be apparent from, the detailed description of the presently preferred
5 embodiments and from the drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

Figure 1 illustrates a flowchart of an embodiment of a system of the present invention wherein a patient is admitted and/or registered in a hospital.

10 Figure 2 illustrates a flowchart of an embodiment of a system and a method of the present invention for training, conducting a retrospective analysis and/or on-site modification of an auditing method.

15 Figure 3 illustrates a flowchart of an embodiment of a system and a method of the present invention for defining initial specifications.

Figure 4 illustrates an accounting chart in an embodiment of the present invention.

20 Figure 5 illustrates a flowchart of an embodiment of a virtual case management method and system of the present invention.

DETAILED DESCRIPTION OF THE PRESENTLY

PREFERRED EMBODIMENTS

25 The present invention provides a system and a method for tracking errors in a health care business. More specifically, the present invention relates to a system and a method for tracking financial, department specific, and/or clinical/medical errors. The errors may be coded and/or categorized by persons other than patient care
30 providers. The present invention further provides a

method for identifying, coding, and/or quantifying errors on a concurrent basis.

Referring now to the drawings wherein like numerals refer to like parts, in Figure 1, a flowchart generally illustrates steps that may be performed before a health care provider receives payment for services. The system and method of the present invention works within this structure. For example, for a healthcare provider, such as a hospital, the revenue process may begin when a patient is admitted into a hospital, as shown at the admitting/registration step 100. The patient, for example, may enter the hospital, for example, as a walk-in 98, through emergency medical services (EMS) 96 or the patient may be referred by a physician. When a physician refers a patient to a hospital, the physician calls the hospital and schedules services for the patient as shown at step 102.

During the admitting/registration process as shown at step 100, the patient may be admitted or an outpatient may be registered. If the medical doctor of the patient is not known, a medical doctor may be assigned to the patient and computer registration may be initiated. After the patient completes the admitting/registration step 100, the patient or the physician may make an in patient bed request as shown at step 106, an out patient bed request as shown at step 108, or an out patient service request as shown at step 110. These types of bed requests or service requests may change. For example, a patient may start as an out patient and later may make an in patient bed request as shown at step 106. A common

error that may occur at this step is that a provider, such as a hospital or doctor, or a payor, such as an insurance company, may incorrectly designate a benefit plan to the patient. The next step is pre-admission as shown at step 112.

During the pre-admission step 112, the admitting/registration staff receives a diagnosis of the patient and a patient identification may be assigned as shown at step 114. The patient identification may include an account number and a clinical/medical record number. The patient may then be given a patient identification bracelet to wear. The admitting/registration staff may then assign the patient to the appropriate clinical/medical area as shown at step 116 and request a room or service assignment as shown at step 118 from, for example, a nurse. At this point, the admitting department may update the patient's computer registration as shown at step 120.

When a patient enters the hospital on his own accord or via emergency medical services (EMS) as shown at step 96, at the pre-admission step 112, the patient may be asked to fill out a patient questionnaire as shown at step 122 and patient signatures and consent may be obtained as shown at step 124. Typically, a nurse may then review the questionnaire and admission criteria as shown at step 126. Based on the review, if any admission issues exists, a nurse may notify a physician as shown at step 128, and any necessary corrections may be taken as shown at step 130. At this point, the admitting/registration staff may receive the diagnosis

of the patient, and the patient identification is assigned as shown at step 114. The admitting/registration staff may then assign the patient to the appropriate clinical/medical area as shown at step 116 and then may request a room or service assignment as shown at step 118 from, for example, a nurse. At this point, the admitting department may update the computer registration of the patient as shown at step 120.

After the admitting department updates the computer registration of the patient as shown at step 120, the appropriate clinical/medical area may be notified as shown at step 132, and the patient may be transported to a room or clinical/medical area as shown at step 134. Finally, the patient may be physically admitted as identified at step 136.

During this common method of admitting a patient in a healthcare facility, such as a hospital, common clinical/medical and financial errors may occur. For example, from a financial view, a patient may have been admitted by insufficient admission criteria, with incorrect insurance information, and improper insurer notification. From a clinical/medical view, the patient may have been admitted with an incorrectly designated benefit plan, with insufficient or incorrect clinical/medical data or lack of data, inefficient coordination of resources, and lack of easy access to disease management programs and benefit plan programs.

The patient has entered a complex system of healthcare providers and insurers who are dependent on data received during the admission process in addition

to data received during care of the patient in making decisions with respect to the care and reimbursement of services for that patient. The wrong data may be applied to the wrong patient, and abnormal and normal diagnostic information may not be passed on to the correct patient.

After the patient is physically admitted as shown at step 136, the treatment of the patient as shown at step 138 may occur prior to discharge of the patient as shown at step 140. Following discharge of the patient as shown at step 140, clinical/medical records processing shown at step 142 and business office processing shown at step 144 may generate the bill of the patient as shown at step 146 and then may submit the bill to payor as shown at step 148. The payor is the insurance company or patient or whomever was designated as the paying party for the healthcare services rendered.

After the healthcare provider has submitted the bill to the payor as shown at step 148, the healthcare provider may conduct an account follow up as shown at step 150 and department follow up as shown at step 152 to ensure the provider has received the bill and to ensure no outstanding issues exist. At this point, if any changes were made, bill resubmissions may occur as shown at step 154. The next step is account collection as shown at step 156, and finally, account resolution as shown at step 158.

A bill may not be submitted until an extended time period after the discharge of a patient due to efforts required to identify or correct any deficiencies within the file of a patient. After the discharge of the

patient, professional staff, clinical/medical records department, business office, and the admitting department may need to correct a single problem. Another common error is that the patient may be discharged without appropriate follow up arrangements and/or post-care prevention and management. In addition, these types of errors often result in lost revenue and increased clinical/medical and financial risk to the health care facility.

The flowchart of Figure 2 generally illustrates a system and a method for training, conducting a retrospective analysis, and/or on-site modification of an auditing method that may be applied to the general structure illustrated in Figure 1. The first step of the audit is training as shown at step 200. For the training step 200, the appropriate personnel may be chosen as shown at step 202. In the preferred embodiment, there are three types of personnel: managers 212, auditors 204, and technologists 222. Auditors 204 may be registered nurses; healthcare professionals; and others with an understanding of clinical/medical terminology, health clinics, and provider operations such as hospitals and clinics. Auditors 204 may be trained to audit hospital and healthcare records as shown at step 206 by comparison to onsite visual audits, financial data, the hospital's charge master, hospital operating procedures, and any other current sources for documenting patient care.

Auditors 204 may also audit departments within the healthcare facility as shown at step 208. Auditors 204 may begin auditing and data collection at the bedside of

a patient in specific departments such as outpatient areas or general medical floors of a hospital as shown at step 210. These areas may be chosen first for newly trained auditors 204 because they are typically less complex than other areas of the hospital. More complex areas such as, for example, the operating room or labor and delivery, are audited by auditors 204 with more advanced training. In addition to auditing records, the auditors 204 may have the opportunity to note any irregular or erroneous activity in the patient or department area in which they may be located. Hence, the auditors 204 are not only noting financial and clinical/medical errors in reports, they may also note financial and clinical/medical errors that may not be documented anywhere.

Managers 212 may be trained to generate reports to evaluate the effectiveness of an audit of the facility in question and to design efficient auditing procedures for the facility in question as shown at step 214. The managers 212 may also receive training in communication with clients as shown at step 216. Further, the managers 212 may be trained to manage a retrospective analysis of a healthcare provider, such as a hospital, as shown at step 218. In addition, the managers 212 may manage auditors 204 as shown at step 220.

The technologists 222 may be managed by the data system manager 224 and may be trained in data entry as shown at step 226. The technologists 222 may be trained to receive the information provided by the auditors 204 and/or the managers 212 and enter the information into

a known computer database.

After the auditors 204, the managers 212, and the technologists 222 are trained, a retrospective analysis 300 may be conducted by the managers 212 and the data systems manager 224. The managers 212 may conduct a general audit of different areas of the healthcare facility or business, such as a hospital, as shown at step 302. The technologists 222 may enter the information gathered during the general audit 302 into data management screens as shown at step 227. The managers 212 and the data systems manager 224 may review the information and then may prioritize areas that appear to generate the most significant number of errors as shown at step 304.

The managers 212 may be trained to evaluate revenue reports, exception reports, late charge reports, external and internal operational deficiency reports, business office reports, registration/admitting reports, census reports, health information management reports, the hospital's current charge master, current internal codes for cost centers and revenue departments, current floor plan of patient care areas, internal management reports that note delinquent charges, number of denials from insurance companies, number of accounts written off to bad debt, number of audits from insurance companies, number of audits from public aid, number of audits from Medicare, list of current managers, current financial statements, sample of current bills and respective clinical/medical records, onsite physical audit of key hospital functions from the point of patient entry to

discharge, current clinical/medical records' procedures, transcription procedures, and hospital policy and procedures including charge capture and credit policies.

After the managers 212 and the data systems manager 224 have completed a retrospective analysis as shown at step 300, the managers 212 may establish initial prospective audit materials as shown at step 306 in which the managers 212 may define initial specifications as shown at step 310 and create auditing charts as shown at step 308. Information received during the retrospective analysis 300 may be used to select benchmarking materials, criteria and establish a baseline for the auditing charts as shown at step 308.

The managers 212 may then select a pilot area as shown at step 400 within the healthcare facility in which to test the auditing charts. The auditors 204 may then begin an audit of the pilot area as shown at step 400 by auditing clinical/medical records at the patient bedside on a day-to-day basis. The auditors 204 may evaluate all functions in the pilot area that impact revenue, including functions that are not typically documented in any record. For each function, a custom data management screen may be designed by the managers 212 to record errors and any subsequent changes in procedure as shown at step 227. The data collected may be compared to the revenue report of the healthcare facility to note any subsequent financial changes since the implementation of the audit. Additional steps taken during the audit are described below in further detail.

Based on the data collected and onsite auditing, the

auditors 204 may begin to note any other activity that impacts the healthcare facility financially. The managers 212 may conduct on-site modification of the audits as shown at step 500. The managers 212 may
5 prioritize areas as shown at step 502. The managers 212 may choose the area with the highest priority as the pilot area 400 and then may add additional areas. The managers 212 may then rewrite, test, implement and manage new procedures for those activities as shown at step 504.
10 The procedure used during the audit that detects the financial errors for the facility may continually be updated as the auditors 204 continue to note activities that financially impact the healthcare facility as shown at step 508 and update prospective auditing materials as shown at step 510. The managers 212 may track the
15 procedures used and errors detected on a day-to-day basis as shown at step 506 and report such information in the management reports. The managers 212 may continue the on-site modification as shown at step 500 by redefining specifications as shown at step 512 and then repeating
20 the on-site modification as shown at step 500.

Clinical/medical errors that may be outside the scope of revenue management may be brought to the attention of the appropriate healthcare facility contact.
25 For example, if the incorrect medication was documented as given to a patient, this clinical/medical error may be outside the scope of the financial audit. Even though this method does not present a solution or a new procedure to correct this type of clinical/medical error,
30 all clinical/medical errors may be noted and may be

brought to the attention of the appropriate healthcare facility contact person.

Turning now to Figure 3, the specific steps taken by the auditors 204 and the managers 210 are illustrated.

5 The managers 210 may define initial specifications 310 by assigning a code to each facility area and department of the healthcare facility as shown at step 309. For example, in a hospital setting, the pharmacy department may be assigned a department code 2, and the outpatient

10 department may be assigned a department code 5. For a sample list of codes that may be assigned to facility areas and departments in a hospital setting as shown at step 309, see Appendix B. Further, the managers 212 may assign a code to all revenue departments in the

15 healthcare facility as shown at step 312. For example, in a hospital setting, the nursery department may be given a description "NUR" and a revenue code number "25" by the hospital, but the managers 212 may assign their own code such as "16". For a sample list of codes that

20 may be assigned to revenue departments of a hospital as shown at step 312, see Appendix A.

After the managers 212 have assigned codes to facility areas and departments as shown at step 309 and revenue departments as shown at step 312, a letter code

25 may be assigned to different financial errors as shown at step 314 under a primary coding system as shown at step 316. For example, "Admitting/Registration Errors" may be assigned the letter "N", "Item indicated on the charge sheet but not supported by documentation in the

30 designated area in the medical record" may be assigned

the letter "B", and "Other" may be assigned the letter "F". An exemplary list of codes that may be assigned to common financial errors as shown at step 314 from the primary coding system as shown at step 316 is attached as Appendix C.

Further, in a Secondary Coding System as shown at step 318, codes may be assigned to specific items and departments as shown at step 320. For example, "Day Surgery" may be assigned the letters "DS". For a sample list of codes assigned to items and departments as shown at step 320 from the Secondary Coding System as shown at step 318, see Appendix D.

Still further, in the Tertiary Coding System as shown at step 322, codes may be assigned to specific clinical/medical errors as shown at step 324. All discovered clinical/medical errors may be referred to the appropriate contact person at the healthcare facility. For example, "Incomplete documentation of services" may be assigned the code "AA1"; "Omitted or delayed medication" may be assigned the code "EE2"; and "Missing MD signatures" may be assigned the code "HH3". For a sample list of codes that may be assigned to clinical/medical errors as shown at step 324 from the Tertiary Coding System as shown at step 322, see Appendix E.

After the departments, areas, items, and type of errors have been coded, the managers may develop specific formulas as shown at step 326 for the auditing charts as shown at step 308. Each unique area of the healthcare facility may have its own auditing chart.

Areas that have similar operating procedures and share the same type of errors may share an auditing chart. For example, Figure 4 illustrates a chart 600 for the areas of day surgery and for out patient surgery. The codes for the specific areas 602 are shown in the upper right hand corner. An area is provided in which to write in the patient's name 604, account number 606, room number 608, the auditor's initials 610, and the date 612. An area is also provided where the auditor 204 may circle the code for the appropriate department 614. An area is further provided where the auditor 204 may circle the code that represents the error 616 that may be detected. In this example, the codes B, C, D, F, H, I, K, L are shown as choices. The auditor 204 may also have the option of writing in any code not shown under other/description 622. In addition, the auditors 204 may note the department in which the error occurred. Figure 4 shows the codes F2, CS, RX, and PS as typical departments 614 where errors most commonly occur. Again, the auditor 204 may not be limited to the codes shown and may write in another code. In addition, the chart may also allow for the entry of information regarding the specific item 618 in question and the amount undercharged or overcharged 620.

The codes shown are selected during the retrospective analysis of the area as shown at step 300. At that time, the managers 212 may note what errors most commonly occur and in which departments the errors occur. The managers 212 and the data systems manager 224 may use data mining as shown at step 305 to retrieve the relevant

information the managers 212 are seeking. Data mining may include the extraction of implicit, previously unknown, and potentially useful information from data. Data mining may use machine learning, statistical and visualization techniques to discovery and present knowledge in a form which may be easily comprehensible to humans. The managers 212 corroborate with the data systems manager 224 in retrieving information from the database created by the data entry of the audits that may be continuously conducted and entered into the database. Using data mining, the errors may be brought to the attention of the managers 212, and the managers 212 may then take the next step to assist in correcting and mitigating the errors.

As the auditors 204 continue to audit the area and the managers 212 continue to change or update procedures due to the common errors that may be found, the auditing charts, as shown at step 308, may also be changed. For example, after the auditing charts as shown at step 308 may be given to the technologist 222 for data entry 226, the managers 212 may generate a report and note that most of the errors occurred in the department coded RX. The code RX may refer to the pharmacy. After the pharmacy is established as a department that is executing errors, a new procedure may be created, tested, and/or implemented in the pharmacy department. After additional audits, additional changes may or may not be necessary.

The managers 212 may continually evaluate the audits, generate reports, change procedures and audit charts on a day-to-day basis. The process of

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CONTENTS:

Our Case No.: MBA-P-00-001

Patent application for: REBECCA S. BUSCH

Entitled: "A SYSTEM AND A METHOD FOR AN AUDIT AND VIRTUAL CASE MANAGEMENT OF A BUSINESS AND/OR ITS COMPONENTS"

ENCLOSED:

1. Patent Application Transmittal (*in duplicate*)
2. Specification (45 pages)
3. 5 pages of Drawings
4. Executed Declaration
5. Executed Small Entity Declaration
6. Check for \$435.00 Filing Fee (12 claims; 05 independent)
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continually evaluating the audits, generating reports, changing procedures and auditing charts on a day-to-day basis, allows for the discovery of errors and correction of individual errors as well as improvements on financial and clinical/medical procedures prior to discharge of patients. In addition to continually changing and updating procedures due to the common errors that may be found, the managers 212 may also continue to update the training for the auditors 204, the data system managers 224 and the technologists 222 as well as update the specifications as shown at step 310, update the prospective audit materials as shown at step 510, update the data management screens as shown at step 227, continue to conduct retrospective analysis as shown at step 300 and/or test within a pilot area as shown at step 400.

After patients are discharged, the auditors 204 may also audit the existing process used by the healthcare facility as shown in Figure 1 in the generation of bills as shown at step 146, account follow up as shown at step 150, account collection as shown at step 156 and/or other potential billing errors. The managers 212 may also implement a new procedure at this later stage. The managers 212, the auditors 204, the data systems manager 224 and the technologists 222 may conduct audits on a day-to-day concurrent basis from a time the patient enters the healthcare facility until a time at which the patient is discharged, including steps along the way. Further, audits will also be conducted during the process of generating the bill of the patient and every step

taken until the bill is settled.

In addition to using the data mining as shown at step 305 for the day-to-day point of service auditing of financial and/or clinical/medical errors in a healthcare facility, the data mining as shown at step 305 may be used as a virtual case management tool as shown in step 700 in Figure 5. As discussed previously, data mining may be used in the auditing of financial and/or clinical/medical errors. In addition, the data mining as shown at step 702 may be used in virtual case management (VCM) analysis as shown at step 700 to audit, for example, the errors of a healthcare facility, such as errors of a hospital or a doctor, patient errors, and payor errors. VCM is a decision making analysis tool that may enable the financial and clinical/medical method for identifying, qualifying, quantifying, coding, categorizing, prediction and/or mitigation of errors in current and ongoing management of healthcare services.

The VCM method 700 may begin by collecting error transaction data during defining specifications as shown at step 310 of Figure 3 and as described above. Data mining of clinical/medical, financial and department errors may be provided as shown at step 702 in the fields of payor 704, patient 706, hospital 708, physician 710, allied-health 712, non-traditional 714, and other 716. The data mining that may occur from the specification process feeds into flowcharts for each field as shown at step 718. The flowcharts may create an automated case management tool as shown at step 720. The next step is to process data on self-management of current and future

health products and services with reimbursement schedules for each field as shown at step 722. This information may then be used to redefine specifications as shown at step 724.

5 The VCM tool as shown at step 700 may provide the user with a decision making tool to self-manage resources, direct resources, and/or select options to mitigate potential and/or actual transaction errors. The tracking of current errors into a decision-making tool
10 process may limit, avoid, and/or minimize future errors in the decision-making and management process of an episode of health care. The foundation of the process is built on existing errors. As the errors are addressed, the present invention may provide for the continuous
15 addition of new and future errors for eventual management, mitigation and/or resolution.

 As additional data may be fed through the system, additional VCM tools may be developed. In the preferred embodiment, tools include: VCM-hospital, VCM-physician,
20 VCM-patients, VCM-payors, VCM-allied health, VCM-non-traditional providers, and VCM-other businesses.

 More specifically, VCM of a payor 704 may allow the payor 704 to look for duplicate billings, management of future services and/or any other payment criteria
25 including the method for identifying, qualifying, quantifying, coding, categorizing, prediction and/or mitigation of errors.

 VCM of a patient 706 may allow the patient 706 (or employers with insured employees) to seek and/or manage
30 the selection process and/or management of services

within a network and/or out of a network and also allow for the identifying, qualifying, quantifying, coding, categorizing, prediction and/or mitigation of errors. For example, if the patient 706 has a hip replacement, the logistics of managing the selection of rehabilitation services for non-covered and covered services may be manual and/or disconnected in the market place. VCM 700 of a patient 706 may address this issue.

VCM of a hospital 708 may allow the hospital 708 to manage future services and reimbursement issues after the patient leaves healthcare facility and allows for the management of identifying, qualifying, quantifying, coding, categorizing, prediction and/or mitigation of errors. For example, if the hospital 708 performs a hip replacement surgery on a patient, the hospital 708 may lose the opportunity to present rehabilitation services upon discharge because the logistics of managing post-operative care and general subsequent care may be complex and cumbersome. The logistics of managing post-operative care and general subsequent care is a manual process and generally is disconnected in the market place. The present invention may allow for an automated post discharge case management tool that addresses this issue.

VCM of a physician 710 may allow physicians 710 to manage future services and reimbursement issues after they determine a patient's diagnosis and treatment plan in addition to identifying, qualifying, quantifying, coding, categorizing, prediction and/or mitigation of errors. For example, a physician 710 may diagnose a patient with a severe arthritic condition of the hip and

may recommend a total hip replacement. The physician 710 may not proceed with the plan of care without coordination of other players in the market place. The payor 704 may decide to pay for only three days of rehabilitation, for example, but the plan of the physician 710 of care requires seven days of rehabilitation for an optimal outcome. Surgery may be placed on hold until the entire care plan may be facilitated and/or coordinated. The present invention addresses this issue by providing coordination of approved services and options to facilitate and/or finance non-covered services.

VCM of allied health services 712 may allow allied health services to manage the identifying, qualifying, quantifying, coding, categorizing, prediction and/or mitigation of errors, services and/or reimbursement issues. For example, a patient 706 may have a total hip replacement. The insurance coverage of the patient 706 may allow for in-home physical therapy. Automated knowledge of this information may allow the physical therapist a opportunity to manage these patients.

VCM of non-traditional health services 714 may allow non-traditional health services 714 to manage the identifying, qualifying, quantifying, coding, categorizing, prediction and/or mitigation of errors and/or reimbursement issues. For example, a patient 706 may have a total hip replacement. The policy coverage of the patient 706 may provide for some limited chiropractic rehabilitation services, or acupuncture for pain management, for example. The present invention may

assist non-traditional health providers to manage these patients 706.

5 VCM of other business services 716 may allow other businesses outside of hospitals to manage services, policy requirements, and/or reimbursement issues as well as the identifying, qualifying, quantifying, coding, categorizing, prediction and/or mitigation of errors. Other businesses services 716 may include a nursing home, for example, that temporarily discharges a patient 706 to 10 a hospital for a total hip replacement. After discharge, the nursing home may not have the facility to directly manage the rehabilitation process. Therefore, the logistics of finding interim care and lodging for the patient 706 may be manual, cumbersome, and/or limited. 15 Other business services 716 may also include a school system that may manage health records of children within a school district. The process of maintaining certain health requirements may often be manual, cumbersome and/or limited. The present invention may facilitate 20 these issues.

25 It should be understood that various changes and modifications to the presently preferred embodiments described herein may be apparent to those skilled in the art. Such changes and modifications may be made without departing from the spirit and scope of the present invention and without diminishing its attendant advantages. It is, therefore, intended that such changes and modifications be covered by the appended claims.

I Claim:

1. A method for training personnel to audit a business at a location wherein a transaction occurs at the location associated with the business, the method comprising the steps of:

choosing the personnel to audit the business at the location of the transaction;

training the personnel to collect data at the location of the transaction;

training the personnel to audit records as the records are created wherein the records are created by the transaction of the business; and

training the personnel to visually audit the transaction of the business.

2. The method of Claim 1 further comprising the steps of:

training the personnel to audit records by comparison to sources for documenting the business; and

training the personnel to identify any irregular activity that is not documented.

3. The method of Claim 1 further comprising the steps of:

training the personnel to evaluate the effectiveness of the audit of the business;

training the personnel to design efficient auditing procedures for the business;

training the personnel to communicate with clients;

training the personnel to conduct a retrospective analysis of the business; and

training the personnel to collect relevant data and

enter data into a database.

4. A method for auditing of a business at a location wherein a transaction occurs at the location associated with the business, the method comprising the steps of:

conducting a general audit of the business;

entering information collected during the general audit into a database;

data mining information collected from the general audit;

prioritizing an area in which a significant error occurs;

establishing a specification code for each function of the business;

using the specification code to create an auditing chart;

choosing a pilot area associated with the area in which the significant error occurs to test the auditing chart;

auditing the pilot area with the auditing chart at the location of the transaction;

collecting information during the auditing of the pilot area;

modifying the auditing of the business on-site based on the information collected in the pilot area;

updating the specification code and the auditing chart; and

auditing the pilot area with the updated specification code and the auditing chart.

5. The method of Claim 4 further comprising the step of:

auditing on a day-to-day basis.

6. The method of Claim 4 further comprising the step of:

entering data on a day-to-day basis.

7. The method of Claim 4 further comprising the steps of:

auditing clinical records;

auditing medical records;

auditing financial records; and

auditing activities that are not documented.

8. The method of Claim 4 further comprising the steps of:

choosing a second area associated with an area in which a significant error occurs;

auditing the second area with an auditing chart at the location of the transaction;

collecting information during the auditing of the second area;

modifying the auditing of the business on-site based on the information collected in the second area;

updating the specification code and the auditing chart based on the information collected in the second area; and

auditing the second area with the updated specification code and the updated auditing chart.

9. A method for virtual case management of a business, the method comprising the steps of:

conducting a continuous audit of a process to identify process error associated with the business;

collecting the errors from the continuous audit;

entering the errors into a database;
data mining the errors in the database;
creating a flowchart from the data mining;
creating a case management tool from the flowcharts;
and

mitigating the errors with the case management tool.

10. The method of Claim 9 wherein the errors include clinical/medical errors, financial errors and department errors.

11. A system for an audit of a business, the system comprising:

personnel associated with the audit of the business;
a specification code created by personnel for a function of the business;

an auditing chart created with the specification code;

a database wherein information associated with an error from the audit of the business is stored and wherein the error is mined;

a pilot area of the business to test the auditing chart.

12. A system for virtual case management of a business, the system comprising:

a continuous audit of a process to identify process errors associated with the business;

a database wherein the errors from the continuous audit are mined;

a flowchart associated with the errors mined; and

a case management tool created from the flowchart wherein the case management tool manages current and

future episodes of business services.

ABSTRACT OF THE DISCLOSURE

The present invention provides a system and a method for an audit of a business and/or its components. More specifically, a formula is provided that may track errors in a health care business, such as financial, department specific, and/or clinical/medical. The errors may be coded and categorized by persons other than patient care providers. Further, the present invention provides a method for identifying, qualifying, quantifying, coding, categorizing, prediction and/or mitigation of errors on a concurrent basis through, for example, point of service audits. The errors and information may be gathered during the audits and may be entered into a database. Data mining may be implemented to provide additional information in which flowcharts may be created to be used as a case management tool.

APPENDIX A

CODES FOR REVENUE DEPARTMENTS

Code Assigned by Managers	Hospital In-house Description	Hospital In-house Text Description of Area of Hospital	Hospital In-house Rev Code
1	M2	Med II	18
2	M1	Med I	15
3	S1	Surg 1	13
4	ICU	ICU	21
5	IMC	IMC	14
6	TLC	TLC	20
7	LD	L & D	33
8	END	Endoscopy	43
9	DS	Day Surg	39
10	OPS	OP Surg	30
11	CVI	CVI	23
12	OR	OR	31
13	IV	IV Therapy	42
14	CS	Central Supply	34
15	MS	Material System	71
16	NUR	Nursery	25
17	OBG	Obstetrics	24

Code Assigned by Managers	Hospital In-house Description	Hospital In-house Text Description of Area of Hospital	Hospital In-house Rev Code
18	OPT	Out Patient	46
19	PMC	Pain Management	75
20	HEMO	HemoDialysis	85
21	ER	Emergency Room	36
22	PHM	Pharmacy	69
23	PS	Pulmonary	67
24	RR	Recovery Room	32
25	AP	Anatomical Pathology	61
26	BB	Blood Bank	61
27	BGL	Blood Gas Lab	67
28	CAR	Cardiology Services	38
29	CH	Chemistry	61
30	CR	Cardiac Rehab	79
31	CT	Computer Tomography	55
32	DTY	Dietary Services	81
33	ECG	Electrocardiogram	63
34	EEG	EEG	66
35	EMG	EMG	77
36	GS	Grant Square	94
37	HCS	Hema/Coag/Sero	61
38	MAM	Mammography	54
39	MCS	Microbio Cult/Sm	61

Code Assigned by Managers	Hospital In-house Description	Hospital In-house Text Description of Area of Hospital	Hospital In-house Rev Code
40	MON	Medical Oncology	41
41	MRI	Mag Resonance	51
42	NM	Nuclear Medicine	56
43	PT1	PT Centers	80
44	RAD	Diagnostic Radiology	52
45	ST	Speech Therapy	73
46	US	Ultrasound	57
47	USC	Urine/Stool/CSF	61
48	VAS	Vascular Center	76
49	VIP	Vasc Intervent Process	53
50	NW	Nutritional Wellness	90
51	URO	UroDynamamics	58
52	DIAL	Dialysis	85
53	PT2	LaGr Rehab	0

APPENDIX B

CODES ASSIGNED TO FACILITY AREAS AND DEPARTMENTS

Assigned Code Area and Department Code	Area and Department Name
1	Floor
2	Pharmacy
3	MS/CS Charges
4	Pulmonary
5	Outpatient
6	Other

APPENDIX C

PRIMARY CODING SYSTEM - CODES THAT TRACK FINANCIAL ERRORS

LETTER	TEXT DESCRIPTION
A	Item in room - on Kardex but not documented in the designated area in the medical record
B	Item indicated on the charge sheet but not supported by documentation in the designated area in the medical record
C	Item documented in the medical record but not marked on the charge/preference sheet
D	Time Calculation Error
E	Level Determination Error
F	Other
G	Item not "zeroed" out on the preference sheet and not supported by documentation in the medical record
H	Incorrect Item # Chosen
I	No Time Marked on Charge Sheet
J	Time Calculation AND Level Determination not indicated on OR Record
K	Quality Risk Management Issues/errors
L	Case Management issue
M	New item not indicated in charge master
N	Admitting/Registration Errors

LETTER	TEXT DESCRIPTION
O	Actual item incorrectly presented in charge master
P	Price evaluation
Q	Business office issues
R	Diagnosis & Procedure code issues
S	Medical Record Dept/Health Information Management Issues
T	VCM- Payor Financial Errors
U	VCM- Patient Financial Errors
V	VCM- Hospital Financial Errors
W	VCM- Physician Financial Errors
X	VCM- Allied Health Financial Errors
Y	VCM- Non-Traditional Financial Errors
Z	VCM- Other Business Financial Errors

APPENDIX D

SECONDARY CODING SYSTEM: CODES THAT TRACK SPECIFIC ITEMS AND DEPARTMENTS

Letter	Text Description
P1	Pump 1 chamber
P2	Pump 2 chamber
K	Kaofeed tube
SCD	boots
Aqua	heating blanket
Gomco	suction machine
DS	Day surgery
TP	Temporary Pacemaker
IV	Intravenous access
CS	Conscious sedation
PS	Pulmonary Service
RX	Pharmacy
F2	Department specific
MS	Material supply
AM	Apnea Monitor
CPM	Continuous Passive Motion Machine
WS	Wall Suction
BED	Specialty bed order
NC	No Charge
Glucose	acute check reading

Letter	Text Description
HRR	High risk recovery
HTM	Hemodynamic monitoring
Dialysis	Dialysis treatment
HEMO	HEMO bed
OBG	Observation Patient
INP	Inpatient Status
AL	Arterial Line
AS	Arterial Sheath
ACT	Clotting test
O.C.	Pulse Ox Continuous
OR	Pulse Ox Random
TLC	Triple lumen catheter
VAS	Vascular catheter
SG	Swan Gand
PL	Peripheral line
AL	Arterial line
IAB	Balloon pump
CO	Cardiac Output
SVO2	monitor
TP	Temporary Pacemaker
IS	Inline suction catheter
Code	arrest
scale	bed scale
Payor	VCM- Payor Department Errors
dpatient	VCM- Patient Department Errors
dhospital	VCM- Hospital Department Errors

Letter	Text Description
dphysician	VCM- Physician Department Errors
dallied	VCM- Allied Health Department Errors
dnon	VCM- Non-Traditional Department Errors
dother	VCM- Other Business Department Errors

APPENDIX E

TERTIARY CODING SYSTEM:
CODES THAT TRACK CLINICAL ERRORS THAT RESULT IN
CLINICAL CASE MANAGEMENT REFERRALS

Letter	Text Description
AA1	Incomplete documentation of services
AA2	Incomplete documentation of medications
AA3	Incomplete documentation of equipment
BB1	Incomplete documentation of clinical outcomes
CC1	Inconsistent documentation of patient services in comparison to MD order
CC2	Inconsistent documentation of patient medication in comparison to MD order
CC3	Inconsistent documentation of patient equipment in comparison to MD order
DD1	Inconsistent execution of patient services in comparison to hospital P&P
DD2	Inconsistent execution of patient medication in comparison to hospital P&P
DD3	Inconsistent execution of patient equipment in comparison to hospital P&P
EE1	Omitted or delayed service
EE2	Omitted or delayed medication
EE3	Omitted or delayed use of equipment

Letter	Text Description
FF1	Staffing issues
GG1	Treatment of iatrogenic complications
GG2	Death secondary to iatrogenic complication
HH1	Missing critical documents: including and not limited to consents, H&P, admission profile, discharge profile
HH2	Verbal orders not co-signed
HH3	Missing MD signatures
II1	staff: skill set issue
II2	staff: impairment issue
JJ1	Inventory issue
KK1	Financial services referral
LL1	Incorrect admission status
MM	VCM- Payor Clinical Errors
OO	VCM- Patient Clinical Errors
PP	VCM- Hospital Clinical Errors
QQ	VCM- Physician Clinical Errors
RR	VCM- Allied Health Clinical Errors
SS	VCM- Non-Traditional Clinical Errors
TT	VCM- Other Business Clinical Errors

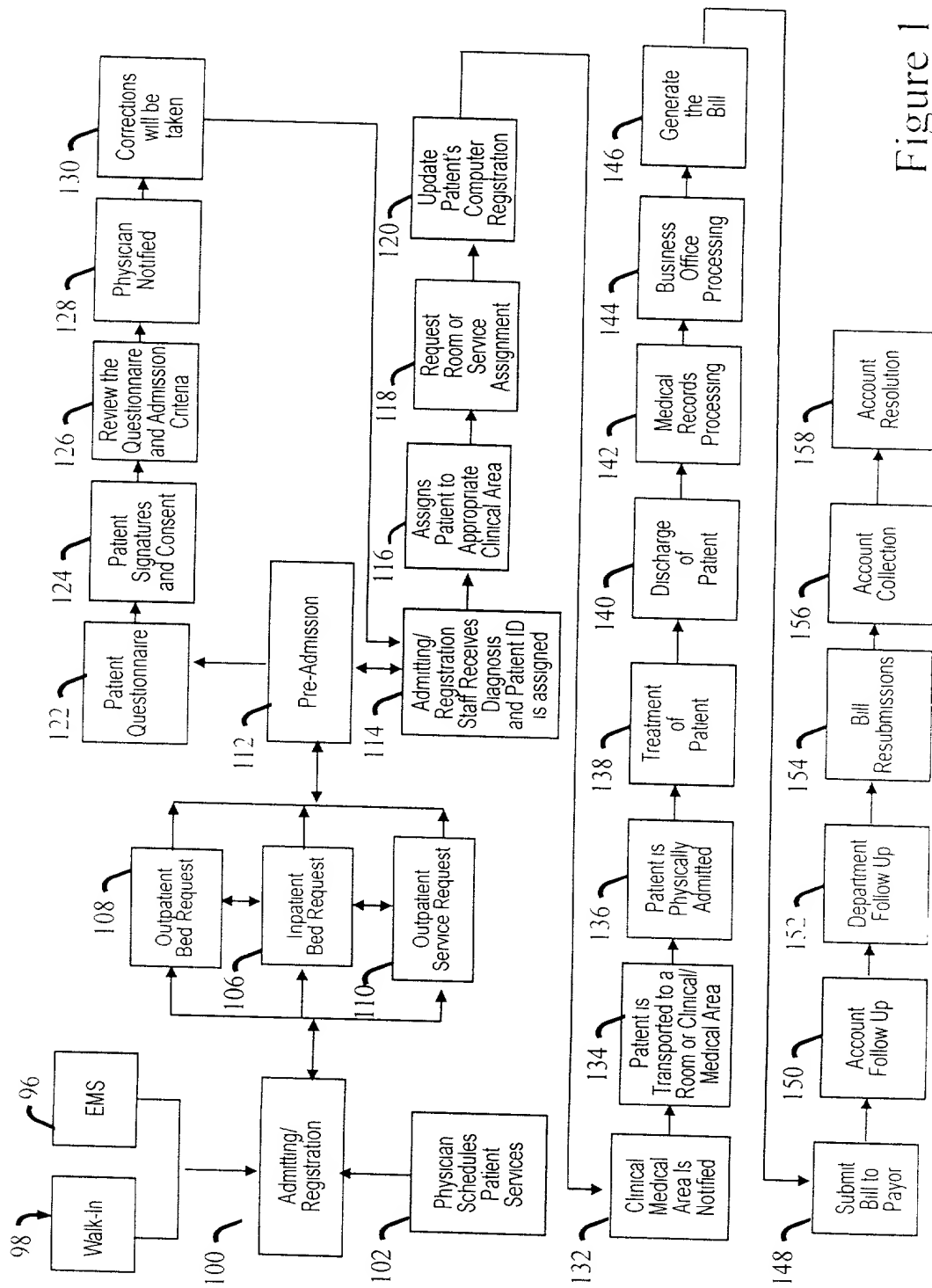


Figure 1

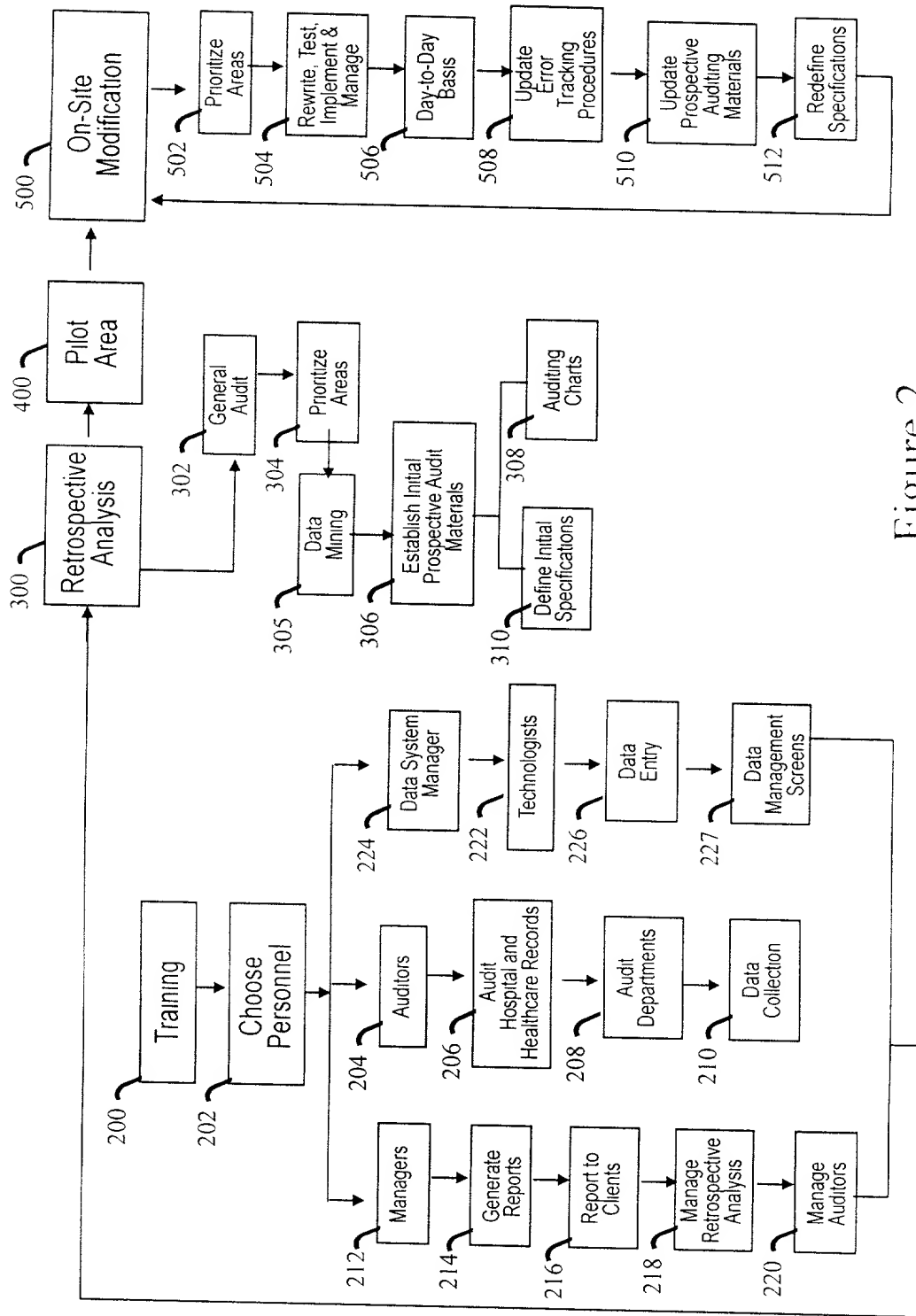


Figure 2

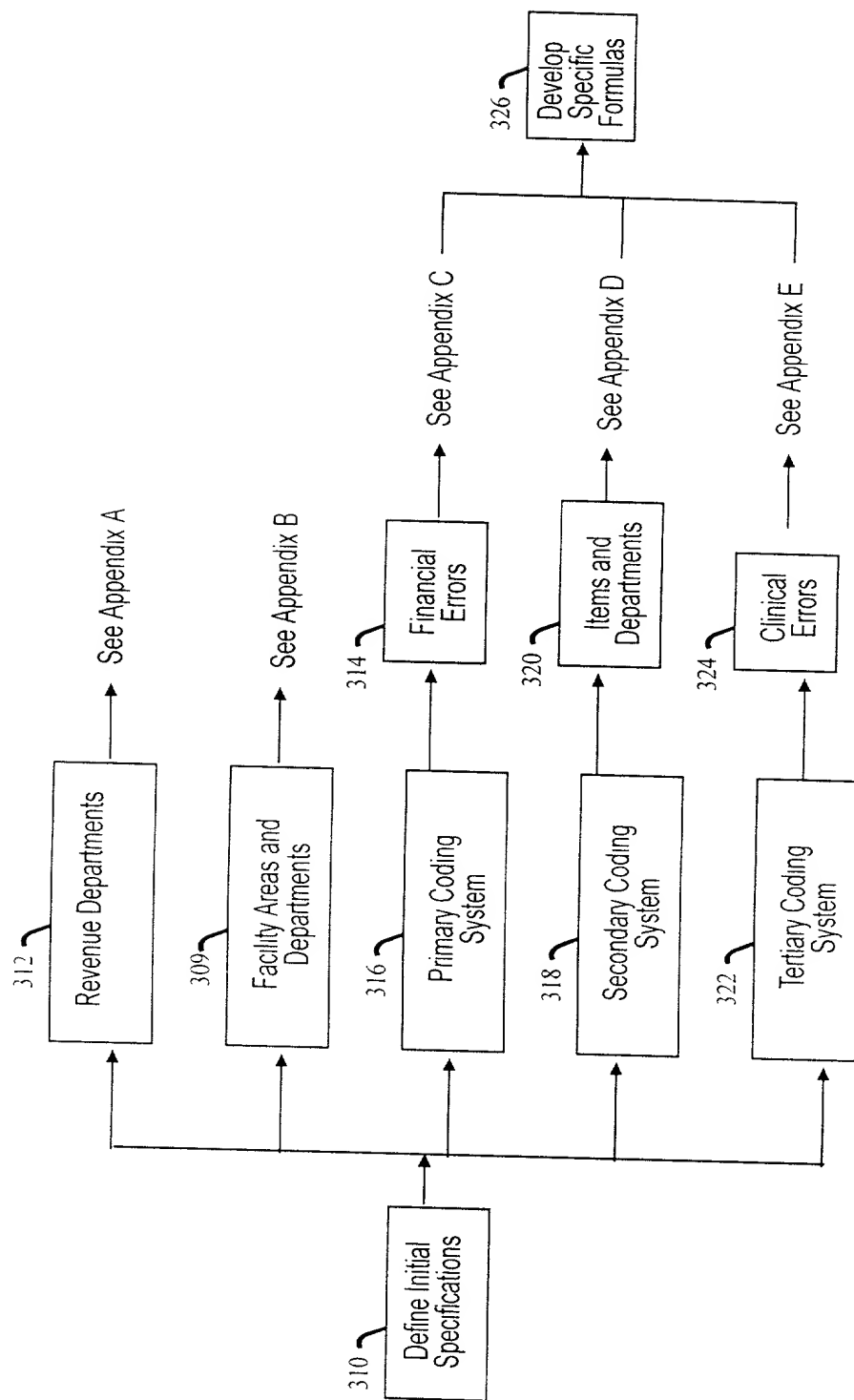


Figure 3

6002

6006

DOCUMENTATION/CHARGE DIS LOG
AREAS: DS, OPS

6004 PT NAME
6010 AUD INIT
6012 Error Type (circle)
6016 (circle) DATE
6014 B C D F H I K L
6018 RX PS
Item#
Other/Description
Underchg
ROOM #
Department
F2 CS
6008
6014
6020

6020

6022

PT NAME
AUD INIT
Error Type (circle)
(circle) DATE
B C D F H I K L
RX PS
Item#
Other/Description
Underchg
ROOM #
Department
F2 CS

PT NAME
AUD INIT
Error Type (circle)
(circle) DATE
B C D F H I K L
RX PS
Item#
Other/Description
Underchg
ROOM #
Department
F2 CS

Figure 4

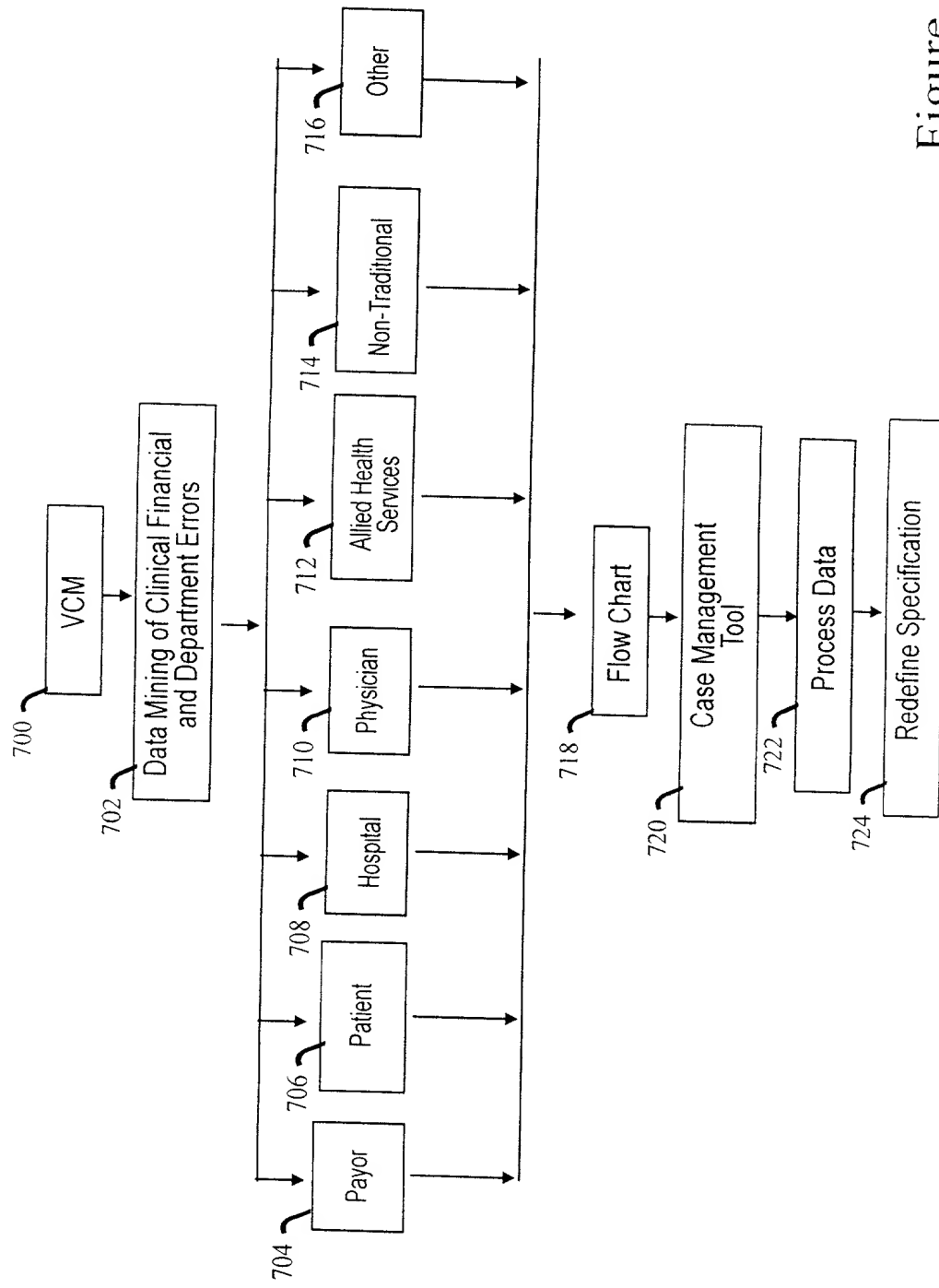


Figure 5

DECLARATION AND POWER OF ATTORNEY

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name,

I believe I am the original, first and sole inventor of the subject matter which is claimed and for which a patent is sought on the invention entitled:

"A SYSTEM AND A METHOD FOR AN AUDIT AND VIRTUAL CASE MANAGEMENT OF A BUSINESS AND/OR ITS COMPONENTS,"

Case No. MBA-P-00-001, the specification of which

X is attached hereto.
_____ was filed on _____, as
Application Serial No. _____.
and was amended on _____.

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims as amended by any amendment referred to above.

I acknowledge the duty to disclose to the United States Patent Office all information which is known to me to be material to the patentability of this application in accordance with Title 37, Code of Federal Regulations, 1.56(a)¹.

I do not know and do not believe this invention was ever known or used in the United States of America before my or our invention thereof, or patented or described in any printed publication in any country before my or our invention thereof or more than one year prior to this application, that the same was not in public use or on sale in the United States of America more than one year prior to this application, and I believe that the invention has not been patented or made the subject of an inventor's certificate issued before the date of this application in any country foreign to the United States of America on an application filed by me or my legal representatives or assigns more than twelve months prior to this application, and that no application for patent or inventor's certificate on this invention has been filed in any country foreign to the United States of America prior to this application by me or my legal representatives or assigns, except as identified below:

I hereby claim foreign priority benefits under Title 35, United States Code, 119 of any foreign application(s) for patent or inventor's certificate listed below:

Prior Foreign Application(s) Number	Country	Date

¹(b) Under this section, information is material to patentability when it is not cumulative to information already of record or being made of record in the application, and

(1) It establishes, by itself or in combination with other information, a *prima facie* case of unpatentability of a claim; or

(2) It refutes, or is inconsistent with, a position the applicant takes in

(i) Opposing an argument of unpatentability relied on by the Office, or

(ii) Asserting an argument of unpatentability.

A *prima facie* case of unpatentability is established when the information compels a conclusion that a claim is unpatentable under the preponderance of evidence, burden-of-proof standard, giving each term in the claim its broadest reasonable construction consistent with the specification, and before any consideration is given to evidence which may be submitted in an attempt to establish a contrary conclusion of patentability.

and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the above listed application on which priority is claimed:

Prior Foreign Application(s)

Number

Country

Date

If no priority is claimed, I have identified all foreign patent applications filed prior to this application:

Prior Foreign Application(s)

Number

Country


Date

And I hereby appoint Brian M. Mattson (Reg. No. 35,018) and Austin Victor (Reg. No. 47,154) of the firm of Patents+TMS, A Professional Corporation as my attorney with full power of substitution and revocation, to prosecute this application and to transact all business in the Patent and Trademark Office connected therewith and direct that all correspondence be forwarded to:

Patents+TMS
A Professional Corporation
1914 N. Milwaukee Avenue
Third Floor
Chicago, IL 60647
Telephone: 773/772-6009

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Full name of sole or first inventor REBECCA S. BUSCH

Inventor's signature 

Date

11/13/00

Residence Oak Brook, Illinois

Citizenship United States

Post Office Address P.O. Box 3681, Oak Brook, Illinois 60522

Applicant or Patentee: REBECCA S. BUSCH
Attorney's Docket No. MBA-P-00-001
Serial or Patent No: _____
Filed or Issued: _____
For: "A SYSTEM AND A METHOD FOR AN AUDIT AND VIRTUAL CASE MANAGEMENT OF A BUSINESS AND/OR ITS COMPONENTS"

VERIFIED STATEMENT (DECLARATION) CLAIMING SMALL ENTITY
STATUS (37 CFR 1.9 (f) and 1.27 (b)) - INDEPENDENT INVENTOR

As a below named inventor, I hereby declare that I qualify as an independent inventor as defined in 37 CFR 1.9 (c) for purposes of paying reduced fees under section 41 (a) and (b) of Title 35, United States Code to the Patent and Trademark Office with regard to the invention entitled "A SYSTEM AND A METHOD FOR AN AUDIT AND VIRTUAL CASE MANAGEMENT OF A BUSINESS AND/OR ITS COMPONENTS" as described in:

- ☒ the specification filed herewith
☐ application serial no. _____, filed _____.
☐ patent no. _____, issued _____.

I have not assigned, granted, conveyed or licensed and am under no obligation under contract or law to assign, grant, convey or license, any rights in the invention to any person who could not be classified as an independent inventor under 37 CFR 1.9 (c) if that person had made the invention, or to any concern which would not qualify as a small business concern under 37 CFR 1.9 (d) or a nonprofit organization under 37 CFR 1.9 (e).

Each person, concern or organization to which I have assigned, granted, conveyed, or licensed or am under an obligation under contract or law to assign, grant, convey, or license any rights in the invention is listed below:

- ☒ no such persons, concern, or obligation exist
☐ persons, concerns or organizations listed below*

*NOTE: Separate verified statements are required from each named person, concern or organization having rights to the invention averring to their status as small entities. (37 CFR 1.27)

FULL NAME _____

ADDRESS _____

☐ individual ☐ small business concern ☐ non-profit organization

I acknowledge the duty to file, in this application or patent, notification of any change in status resulting in loss of entitlement to small entity status prior to paying, or at the time of paying, the earliest of the issue fee or any maintenance fee due after the date on which status as a small entity is no longer appropriate. (37 CFR 1.28 (b))

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application, any patent issuing thereon, or any patent to which this verified statement is directed.

REBECCA S. BUSCH
NAME OF INVENTOR


SIGNATURE OF INVENTOR

11/13/10
DATE